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Declaration under Rule 4.17:

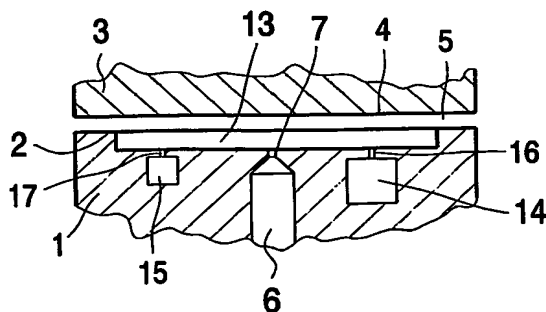
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A GAS BEARING SYSTEM



(57) Abstract: A gas bearing system comprising two opposing and substantially parallel bearing surfaces (2,4) and at least one gas duct (6) for supplying gas to the bearing gap (5) between said bearing surfaces (2,4). A cavity (10,14,15,18,19) having a content between 0.001 cm³ and 0.2 cm³ is present, which cavity is connected to said bearing gap (5) through an orifice (7,11,16,17,20,21). The bearing surfaces (2,4) may comprise a recessed area (13) in which the distance between said two bearing surfaces (2,4) is larger than the distance between said two bearing surfaces (2,4) in the portion of said bearing gap (5) surrounding said recessed area (13).

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F16C G01B G05B B23Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 049 383 A (ERWIN LOCH) 14 August 1962 (1962-08-14) column 1, lines 23-37 column 1, line 71 - column 2, line 37; figures	1-7
X	US 2 884 282 A (HERBERT SIXSMITH) 28 April 1959 (1959-04-28) column 1, lines 18-53 column 5, line 73 - column 6, line 74 column 6, line 73 - column 7, line 11; figures 12,14,16	1-6,8,9
X	GB 880 997 A (NAT RES DEV) 1 November 1961 (1961-11-01) page 2, lines 101-122; figures 8,10	1-3
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 749 456 A (WHITAKER W) 31 July 1973 (1973-07-31) column 8, lines 21-28; figure 3 -----	1
A	US 5 374 129 A (VOHR JOHN H ET AL) 20 December 1994 (1994-12-20) -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International

Application No

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03/05448

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3049383	A	14-08-1962	NONE	
US 2884282	A	28-04-1959	GB 797528 A	02-07-1958
GB 880997	A	01-11-1961	NONE	
US 3749456	A	31-07-1973	NONE	
US 5374129	A	20-12-1994	DE 19508386 A1 JP 8014256 A	21-09-1995 16-01-1996